Claims

1. A high-temperature denitration catalyst which comprises zirconium oxide and SO_3 or SO_4^{2-}, has solid acid strength (Ho) of -11.93 or lower and is used in a high-temperature region at a reaction temperature of 450° to 800℃.

2. A high-temperature denitration catalyst wherein at least one of tungsten oxide, molybdenum oxide and boron oxide is supported on a carrier comprising zirconium oxide and SO_3 or SO_4^{2-} and having solid acid strength (Ho) of -11.93 or lower and which is used in a high-temperature region at a reaction temperature of 450° to 800℃.

3. A process for preparing the high-temperature denitration catalyst as claimed in claim 1, characterized in that an aqueous solution of a nitrate or a chloride of zirconium is basified to form a zirconium hydroxide precipitate, then the precipitate is dried, followed by supporting a sulfuric radical on the precipitate, and the precipitate is calcined.

4. A process for preparing the high-temperature denitration catalyst as claimed in claim 1, characterized in that an aqueous solution of a sulfate of zirconium is basified to form a zirconium hydroxide precipitate, then the precipitate is taken out, optionally dried, and calcined.

5. A high-temperature denitration catalyst as claimed in claim 1 or 2, characterized in that it is dispersed and retained among fibers of ceramic paper.

6. A process for preparing the high-temperature denitration catalyst as claimed in claim 5, characterized in that the ceramic paper is impregnated with a dilute sulfuric acid slurry containing 10 to 35% by weight of the catalyst, optionally dried, and then calcined.

7. A high-temperature denitration catalyst as claimed in claim 1 or 2, characterized in that it is dispersed and retained among fibers of a honeycomb structure obtained by superimposing flat ceramic paper and corrugated plate-like ceramic paper alternatively.

8. A process for preparing the high-temperature denitration catalyst as claimed in claim 7, characterized in that the honeycomb structure obtained by superimposing the flat ceramic paper and the corrugated plate-like ceramic paper alternatively is impregnated with a dilute sulfuric acid slurry containing 10 to 35% by weight of the catalyst, optionally dried, and then calcined.

9. A process for preparing the high-temperature denitration catalyst as claimed in claim 6 or 8, characterized in that a silica colloid solution having a solid concentration of 10 to 40% by weight is added to the slurry in a volume ratio of 0.05 to 1.0.

10. A method of high-temperature denitration characterized in that NOx in an exhaust gas is reduced at 450° to 800℃ using ammonia as a reducing agent in the presence of the catalyst as claimed in any one of claims 1, 2, 5 and 7.

11. A high-temperature denitration catalyst for selective catalytic reduction of a nitrogen oxide in an exhaust gas characterized by comprising a composite oxide composed of titanium oxide and at least one of tungsten oxide, molybdenum oxide and boron oxide and having solid acid strength (Ho) of −11.93 or lower.

12. A high-temperature denitration catalyst as claimed in claim 11, characterized in that it is obtained by impregnating dry titanium oxide with a solution containing at least one of tungsten, molybdenum and boron, then drying the titanium oxide and calcinating it under an oxygen atmosphere at temperatures of 500° to 800℃.

13. A particulate high-temperature denitration catalyst as claimed in claim 12, characterized in that a binder is added to the catalyst, and the obtained mixture is formed into a particle.

14. A high-temperature denitration catalyst as claimed in any one of claims 11 to 13, characterized in that the titanium oxide is amorphous titanium oxide.

15. A high-temperature denitration catalyst as claimed in any one of claims 11 to 13, characterized in that it is dispersed and retained among fibers of a ceramic fiber preform.

16. A process for preparing a plate type high-temperature denitration catalyst characterized in that titanium oxide is dispersed and retained among fibers of a ceramic fiber preform, the titanium oxide is dried and impregnated with a solution containing at least one element of tungsten, molybdenum and boron, and then the preform is dried and calcined under an oxygen atmosphere at a temperature of 500° to 800℃ to obtain the plate type high-temperature denitration catalyst comprising a composite of the above-mentioned metals and having solid acid strength (Ho) of −11.93 or lower.

17. A high-temperature denitration catalyst as claimed in claim 15 or 16, characterized in that the ceramic fiber preform is a

honeycomb structure wherein a corrugated plate-like folded molded product and a flat molded product are superimposed alternately.

18. A method of denitration in a high-temperature region characterized in that a reducing agent is injected into an exhaust gas, and the exhaust gas is contacted with the catalyst as claimed in any one of claims 11 to 17 at a reaction temperature of 400° to 700℃ to reduce and remove a nitrogen oxide in the exhaust gas.